FOREST MANAGEMENT UPDATE

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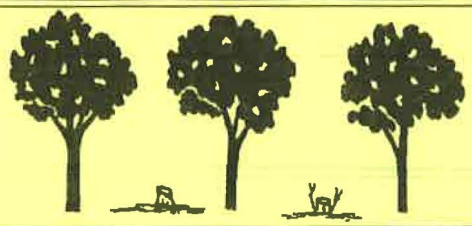
In this issue:

- Reforesting Abandoned Agricultural Land
- Managing Eastern White Pine in New Hampshire Using the Crop Tree Management System
- An Aerial Picture of the Past
- New Demo Area May Reach New Audience
- Salvage Sale Markets and Timing
- Caution: When Girdling . . .
- Where Will the Wood Come From? Some Follow-Up Comments
- New Decision Model Software Available
- Seventh American Forest Congress

NORTHEASTERN AREA
State and Private Forestry

FOREST MANAGEMENT UPDATE . . .



. . . for Forestland Managers and Others Interested in Stewardship of the Forest Resource.

Contents

Articles in this Issue

Reforesting Abandoned Agricultural Land: A Personal Experience 1

Managing Eastern White Pine in New Hampshire Using the Crop Tree Management System 9

An Aerial Picture of the Past 12

New Demo Area May Reach New Audience 17

Salvage Sale Markets and Timing 19

Caution: When Girdling 20

Where Will the Wood Come From? Some Follow-Up Comments 21

New Decision Model Software Available 23

Seventh American Forest Congress 24

Cover Picture: *A recent review of SIP practices finds some participants staring at the ground while others look to the heavens for answers. The service forester just tries to find someone to look in the eye.*

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Reforesting Abandoned Agricultural Land:

A Personal Experience

by Arlyn W. Perkey

My non-industrial private forestland in southwestern Pennsylvania was converted from forest to agricultural land about 1810. Most of the land-use change in the area was accomplished by girdling the trees to kill them and allowing livestock to help retard the establishment of forest vegetation. During the late 1800's sheep farming was the predominant agricultural activity, as evidenced by some early records. In the early 1900's the property became a dairy farm. It remained in this use until it was sold in 1960 to people who lived in the house, but rented out the hayfields. In 1966 the old farmhouse burned, and the property was sold to an absentee landowner. Only the bottomland remained in cultivation.

The absentee landowner planted a small portion of the old pasture to pine. However, the majority of it was allowed to begin the process of reversion to forest naturally. In areas where the seed source from residual trees well adapted to growing on the site was adequate, this worked out well. I now have some nice pole- and small sawtimber-size stands occupying the area. Where the seed source of well adapted species was inadequate, the area developed thick stands of domestic apple and thornapple. They were great early successional-stage wildlife habitat, but it would be a long time before these stands would produce much commercially valuable timber without intervention with active management to encourage regeneration of commercial species.

The pioneer vegetative community on this old pasture was predominantly non-commercial species. Without management activities, it would be many years before the area would grow many high-quality crop trees.

Some areas did have some commercial species starting to occupy the site, but there was an inadequate number of potential crop trees per acre. In these areas, I retained the acceptable crop trees and cut all unacceptable trees to provide adequate space for establishment of additional crop trees through natural regeneration from stump sprouts as well as from newly germinated seedlings. Again, where the seed source is adequate and stumps of desirable species were available, this appears to be working satisfactorily.

In areas where well adapted commercial species were not adequately established, I decided to intervene with artificial regeneration, even though I knew it would be a very labor intensive activity that would not yield financial rewards during my lifetime. I knew that red oak grew well on the farm because I had been monitoring the growth of pole- and small sawtimber-size red oak crop trees. The limited early white pine planting had provided me with the opportunity to monitor its growth and to determine that white pine crop trees were performing very well on these sites. I decided to establish some mixed red oak-white pine patches using artificial reforestation techniques.

Pennsylvania is well known for its excessively high deer population, and Greene County lives up to that reputation. The deer density goal is 20/square mile, but the 1993-94 population was 37/square mile. Consequently, protection of seedlings of high-browse preference species is essential for success. This is especially true if fertilized seedlings from the nursery are planted.

I decided to try establishing oak regeneration from acorns. If you refer to the article, *Learning from the Agony of Defeat*, Issue 15, of the Forest Management Update, you'll find out what didn't work. This article describes some things that currently appear to be working.

Establishing Oak Seedlings from Acorns

Storage of Red Oak Acorns

Collect red oak acorns during normal seed drop which is usually about the first part of October in this area. Float test the acorns in water to eliminate those with the greatest probability of germination failure because of damage from insects. Acorns that have been attacked by weevils often float because of the air space created by the weevil galleries. Sound acorns sink to the bottom of a bucket of water.

Lay the acorns in a single layer on a plate, and place the plate in a plastic bag with a damp paper towel. Don't seal the plastic bag entirely, to allow some air exchange. Leave the acorns in the container in a refrigerator during the winter months. Periodically observe the bag to see that the moisture content is neither too high nor too low. You should observe some beads of moisture condensed on the inside of the plastic bag. If the beads have consolidated into drops of water, the moisture content is too high. If there is no condensed moisture, it is too dry in the bag.

Proper winter storage of acorns is essential. Plastic bags and moist paper towels can be used to prevent desiccation in the refrigerator.

In the spring of the year, the viable acorns will start to sprout, providing pre-germinated acorns ready to plant. Keep these germinating acorns in a moist and cool environment until they are planted.

CAUTION: I have used this method of storing and planting acorns for three growing seasons. The first two seasons I planted many of the acorns prior to germination. That worked satisfactorily, but I was advised that the need for replacement planting could be reduced if I used pre-germinated acorns. However, when spring of the third growing season came, very few of the acorns initiated germination in the refrigerator. I thought I had a germination failure on my hands. With advice from Dave Feicht, Northeastern Forest Experiment Station, I removed the acorns from the refrigerator and placed them in containers stored at room temperature. Moist conditions were maintained by placing damp paper towels in the containers with the acorns. I checked them frequently to make sure they did not mold. Germination success was excellent.

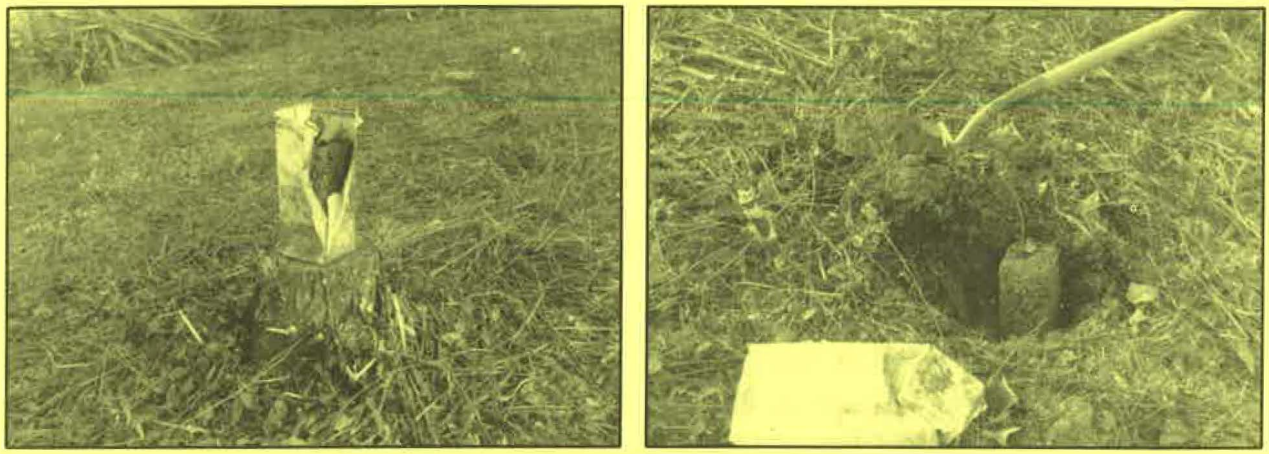
Direct Planting of Red Oak Acorns in Tree Shelters for Protection from Animal Damage

Pre-germinated acorns can be planted in tree shelters that range in height from two to five feet. The height of the shelter required varies with the intensity of the deer pressure on the vegetation in the local area. When the deer population is very high or the availability of alternative browse is limited, four or five foot shelters should be used. When population pressures are more modest, two or three foot shelters may be sufficient. If you have an abundance of acorns, two can be placed in each tree shelter to increase the probability that you will have a vigorous seedling established at the end of the first growing season.

Planting of Acorns in Paper Cartons with Winter Outplanting of Containerized 1-Year-Old Seedling

Pre-germinated acorns can be planted in 1/2 gallon milk or orange juice cartons that have been punctured on the lower sides and bottom with a knife. These puncture holes will permit water to drain from the container. Place the containers on a structure that will keep them elevated from the ground. This will reduce the probability of predation by rodents. It is also advisable to cover the containers with wire mesh to avoid predation by birds. Keeping the containers outside, or in an old building with a partially open roof, will allow the use of natural rainfall and light to stimulate germination and growth of the seedlings.

Acorns germinated in cartons grow into seedlings ready to be outplanted after one growing season.



Seedlings grown in cartons can be outplanted with minimal disruption to the root system.

Allow the seedlings in the containers to grow throughout a growing season. When freezing temperatures occur in the fall or early winter, the seedlings can be outplanted. It is easiest to do this when the containers (exposed to ambient air) are frozen, but the ground at the planting site is not. If the ground has a frozen layer of 2-3 inches, a pick axe can be used to break through the layer and dig a 10-inch hole to receive the seedling. Peel the paper away from the frozen soil inside the container. This provides a seedling with a root system that is surrounded and protected by a frozen soil mass that can be placed in the hole and tamped in with surrounding soil. Obviously, this planting can't be done when there is significant snow cover. If tree shelters are to be used, they can be installed when the ground is not frozen so the supporting stake can be driven into the ground.

Weed Control

When establishing oak seedlings from acorns, it is essential to control the competitive vegetation during the initial three years of plantation establishment. This is true for one-year seedlings germinated in cartons that are outplanted, as well as for acorns that are planted on-site. Weed control can be done with herbicides or with a mulch that inhibits competitive plants. My experience has been using mulch materials, including corrugated cardboard boxes, porous mats, and most recently, old carpet. All three materials appear to work satisfactorily, although the carpet has not been in use long enough for a fair evaluation of its effectiveness.

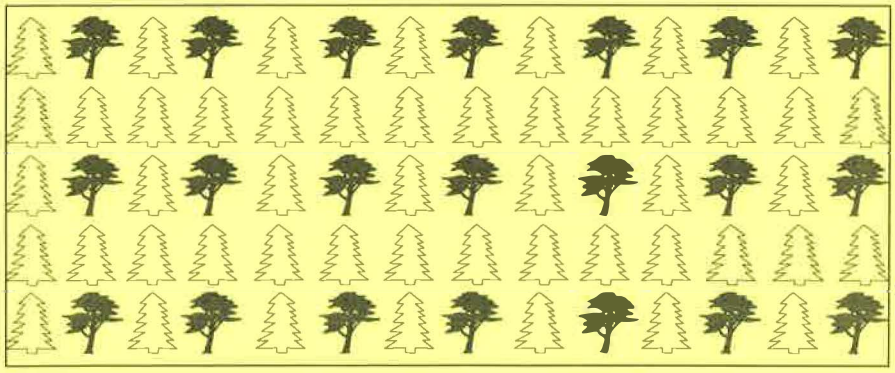
The porous mats have the advantage of being very light, making them easily transportable to the planting site. They have the disadvantage of requiring an out-of-pocket investment. The cardboard has the advantage of generally being available for the cost of transporting it to the planting location. Larger boxes that give a flattened surface of about 6-feet-by-6-feet work best. Smaller boxes can be pieced together around the shelters, but that is more labor intensive. Cardboard is relatively heavy, making it a real advantage to have vehicular access to the use-area.

Old carpet is often more difficult to obtain as a free-for-recycling material, but it currently appears to me that it will have two distinct advantages. It is more porous than cardboard, so short duration rains with small quantities of water are more likely to soak through and be beneficial to the seedlings. Also, I expect that it will last longer than cardboard so it will not require replacement as frequently.

Interplanting with Conifers

Mixed hardwood-conifer plantations offer silvicultural and economical advantages over pure hardwood plantations. Conifers are usually cheaper to establish artificially than hardwoods on abandoned agricultural land. Also, they frequently require less intensive site preparation and release work to become successfully established. Conifers serve as valuable trainers for nearby hardwoods that have gained a slight competitive advantage in a mixed stand. If high-value timber products are an objective, it is important to have shade on the lower bole during the early stages of crop tree development and stand establishment. Conifers effectively provide the shade that causes lower branches to die and drop off before they become large in size.

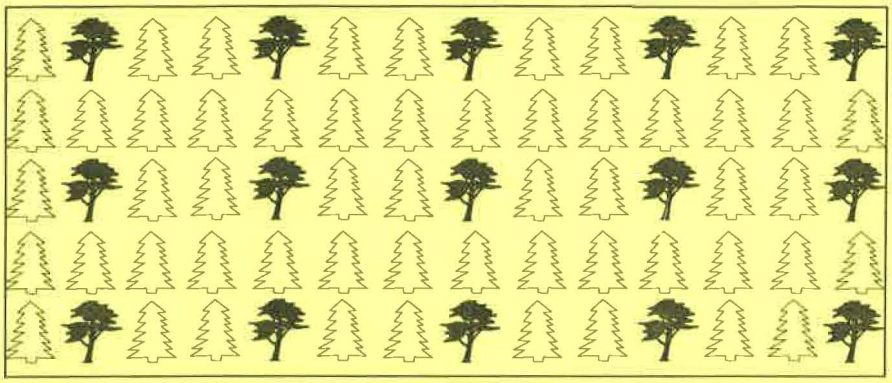
100 Hardwoods & 300 Conifers per Acre



At a density of 100/acre, hardwoods are in alternate rows, with every other tree in that row being a hardwood.

The mixture of hardwoods and conifers can be varied to be consistent with the landowner's willingness to intensively manage. The alternative of planting 400 trees/acre (approximately 10 x 10 spacing) with a mixture of 100 hardwoods and 300 conifers would be considered intensive. At maturity, there is only room for about 50 hardwoods (oaks) per acre. This intensive management alternative would frequently provide the opportunity to make choices between hardwoods when selecting crop trees that will eventually occupy the site at maturity.

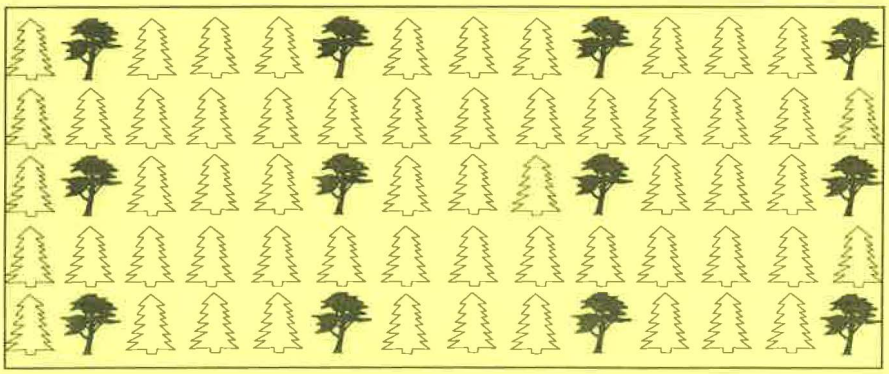
50 Hardwoods & 350 Conifers per Acre



At a density of 50/acre, hardwoods are in alternate rows with every third tree in that row being a hardwood.

The alternative of planting 50 hardwoods and 350 conifers/acre provides a significantly less intensive option that can be expected to result in a mixed stand at maturity with a higher component of conifers.

25 Hardwoods & 375 Conifers per Acre



At a density of 25/acre, hardwoods are in alternate rows with every fourth tree in that row being a hardwood.

The low-intensive alternative of planting 25 hardwoods/acre with 375 conifers is designed to provide a hardwood component in an otherwise coniferous stand. There would be few opportunities for selecting among hardwoods when making crop tree choices in subsequent thinning operations.

Establishing the Coniferous Component

What coniferous species should be selected to interplant with a particular hardwood species? That depends on factors such as the species of hardwood, the geographic area, the planting site, availability of planting stock, forest health problems for the species (insects, disease, or excessively high deer population), etc.

It is desirable for the planted hardwoods to have a slight competitive growth lead over the conifers intended to train them. The amount of time required for the conifers to become well established and to begin rapid growth may vary by species. It can also vary by the amount of site preparation and release work done. If the conifers and hardwoods are planted at the same time, or within a couple of years of each other, it may be advantageous to invest in more intensive site preparation and release work for the hardwoods than for the conifers. This increased investment in the hardwoods should help shift the competitive advantage to them.

Most of my personal interplanting experience has been with red oak and white pine. The primary frustration with the white pine has been the intensive management required to protect the young seedlings from the excessively high deer population. I have used netting during the first year after planting to discourage browsing by deer. It is effective, but the landowner or manager must be willing to make frequent visits to the site to confirm the continued presence of the netting on the trees. If the small stake holding the tree and netting is broken, the netting can come loose and leave the tree unprotected.

During the dormant season, white pine seedlings are extremely vulnerable to browsing by deer. Netting placed over the seedling and secured with a small stake will deter hungry deer. Remove the netting in the spring.

Later in the life of the established seedling, I plan to use 4x4-inch paper bud guards to protect the terminal bud during the dormant season. I anticipate using bud guards for three or four dormant seasons.

Because of the high deer population in the area, I have recently planted Norway spruce as trainers instead of white pine. I am expecting to reduce the quantity of work required to protect the seedlings from deer browsing. I plan to use netting on the Norway spruce during the first dormant season, hoping that they will survive without protection during subsequent seasons.

Some Concluding Thoughts

1. I have had the opportunity to see small pole, mixed hardwood-conifer plantations. I am convinced the combination can result in high-quality crop trees, especially hardwood crop trees. What is most uncertain is how to manage the hardwood and conifer components so the hardwoods have a slight competitive advantage over the conifers. There are several variables that can be manipulated to affect how much advantage is given to the hardwoods to give them a sufficient lead. These include:

    - the species of both the hardwood and the conifer
    - timing of planting (hardwoods planted a season or two before the conifers)
    - the site where they are grown
    - method of establishment (seeding acorns vs planting seedlings)
    - the amount of weed control done for each component (hardwood and conifer)

2. Generally, it is more cost effective to purchase red oak seedlings from a nursery than to grow them from acorns. This article describes my experience of establishing red oak from acorns. Gathering acorns, storing them, successfully germinating them, and watching them grow into healthy seedlings has been an enjoyable educational experience. However, it is labor intensive and for most landowners, it is probably only worthwhile under the following circumstances:

    - It is desirable to control the seed source, that is, the landowner wants to know the seedlings are established from selected parent trees.
    - There is significant deer browsing, and the landowner wants to avoid planting seedlings that have a high nutrient content because of fertilization at the nursery.
    - It is important to extend the planting season (planting acorns and seedlings germinated from acorns in containers can be done over a longer period of time than planting nursery stock).
    - The landowner just wants to see if he can do it and experience the joy of watching trees grow from acorns to established crop trees.

When I purchased my non-industrial private forest, I did not anticipate doing any artificial reforestation. I am confident that when the mixed-conifer stands are well established, I will be happy I made the investment. The venture has been more labor intensive than anticipated, but the joy of watching success unfold has also been more than expected. I can watch a high-quality stand grow on a productive site that would have grown low-quality trees without intervention. While I got my exercise, I also made a worthwhile contribution to another generation.

Managing Eastern White Pine in New Hampshire Using the Crop Tree Management System

by Kenneth Desmarais, Forester
State of New Hampshire - DRED Division of Forests & Lands

Introduction

Crop Tree Management works well with hardwoods in West Virginia, but how about other species in other parts of the country? In 1991, I decided to try this method on Eastern white pine growing on outwash sands at Mast Yard State Forest in south central New Hampshire. The stand chosen had an average diameter at breast height (dbh) of 6.6 inches and contained 1,289 stems per acre. The age of the stems ranged from 38 to 42 years, and the area had a site index of 60 at base age 50.

How Many Crop Trees?

First, I needed to know how many crop trees to release per acre. I started with Philbrook's white pine stocking guide[1/] and chose the dbh that I desired to grow the stand to. In this case, it was 20 inches, which is generally regarded by New Hampshire foresters as mature.

Using the stocking chart, I estimated the location where a stand with a 20-inch dbh would be when stocked halfway between the "B" and "A" lines. The "B" line denotes minimum stocking to fully occupy the canopy, and the "A" line denotes complete stocking. The halfway point permits us to harvest a stand before growth slows down to an unacceptable level.

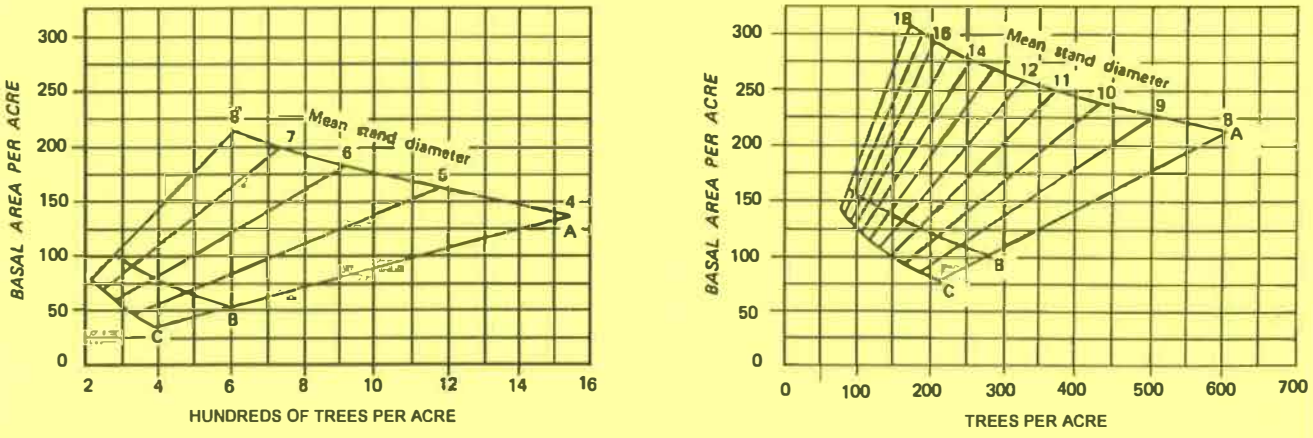


Figure 1. The number of crop trees per acre was calculated from a stocking chart for nearly pure even-aged Eastern white pine stands (Philbrook et al. 1973).

Next, following down to the trees per acre line on the X axis of the chart, I estimated 100 trees per acre would fully occupy the site at maturity (final stocking). At this stocking, crop trees should be spaced about 21 feet by 21 feet. This spacing is helpful when choosing crop trees to release, but you have to remember – it is most important to release the best stems, not just the stems that are spaced accordingly.

Application of the Treatment

To apply this treatment, I marked only the crop trees with paint. I then contracted with a logger using "whole tree harvesting" (shearhead and chipper) to cut any unmarked stems he desired. Consequently, all stems other than the crop trees were harvested. Because this treatment was integrated with a commercial timber sale, no out-of-pocket expense was incurred. Following the harvesting, I pruned all the crop trees to at least 13 feet, most often to 17 feet, and occasionally higher depending on stem characteristics.

Permanent plots were set up within the treatment area to monitor the growth of the crop trees. The table below shows the before and after treatment data for the stand. Before the treatment, the dbh was 6.6 inches. After treatment, because most of the smallest dbh stems were removed, the dbh rose to 11.1 inches. The number of trees per acre dropped from 1,289 to 100, and basal area declined from 310 square feet per acre to only 69.

PRE- and POST-TREATMENT DATA

Feature	Pre-treat	Post-treat
dbh	6.6 inches	11.1 inches
basal area	310 sq.ft./ac.	69 sq.ft./ac.
trees/acre	1,289	100

Although, according to the stocking chart, the stand was presently understocked, I knew that enough stems per acre were left to eventually fully stock the stand at maturity. In reality, the decision I made in the hopes of shortening the rotation was to allocate all growth to the final stand of pruned stems, not to pulpwood and sawtimber trees that would be removed during intermediate treatments.

Results

The first two growing seasons following treatment showed poor response from the stand. Average annual dbh growth the first season was 0.3 inches, and it dropped the second season to only 0.1 inches. The third season's response, though, was very good, showing 0.6 inches of dbh growth.

Basal area response was similar to dbh response. The first season showed an increase of 2.9 square feet, followed by only a 2.3 square foot increase per acre in the second season. The third season's increase changed dramatically to 7.4 square feet per acre. This adjustment period appears natural for a white pine stand based on other research I am conducting.

At the present time, there is plenty of crown space in the stand. I expect the growth rates exhibited in the third season to continue at least until the crowns approach a touching condition. If the growth

observed in the third season continues, I anticipate the dbh to increase to 18 inches within the next ten years and reach maturity in about 13 years at age 56. Basal area should increase from the present 81.95 square feet to about 175 square feet per acre in ten years, and reach about 220 square feet per acre by maturity. The mature stand should contain volumes approximating 37,000 board feet of high-quality sawtimber per acre. This volume compares very favorably with other managed mature white pine stands on New Hampshire's state lands, especially when rotation age is considered.

The 100 crop trees/acre in this eastern white pine stand have been released and pruned to increase the quantity of high-value product produced.

At the time of maturity, I may decide to extend the rotation length, if growth is still good, in order to increase the amount of clear increment on the pruned boles.

This stand will receive annual monitoring. It will be interesting to see if the stand growth rate is maintained over time. Meanwhile, I plan to replicate the treatment in other stands to get better data. Although it is too soon to make definitive conclusions about crop tree release in Eastern white pine, the early results look good!

1/ Philbrook, James S., James P. Barrett, and William B. Leak. A Stocking Guide for Eastern White Pine. Research Note NE-168. Upper Darby, PA: USDA Forest Service, Northeastern Forest Experiment Station; 1973. 3 p.

An Aerial Picture of the Past

by Arlyn W. Perkey

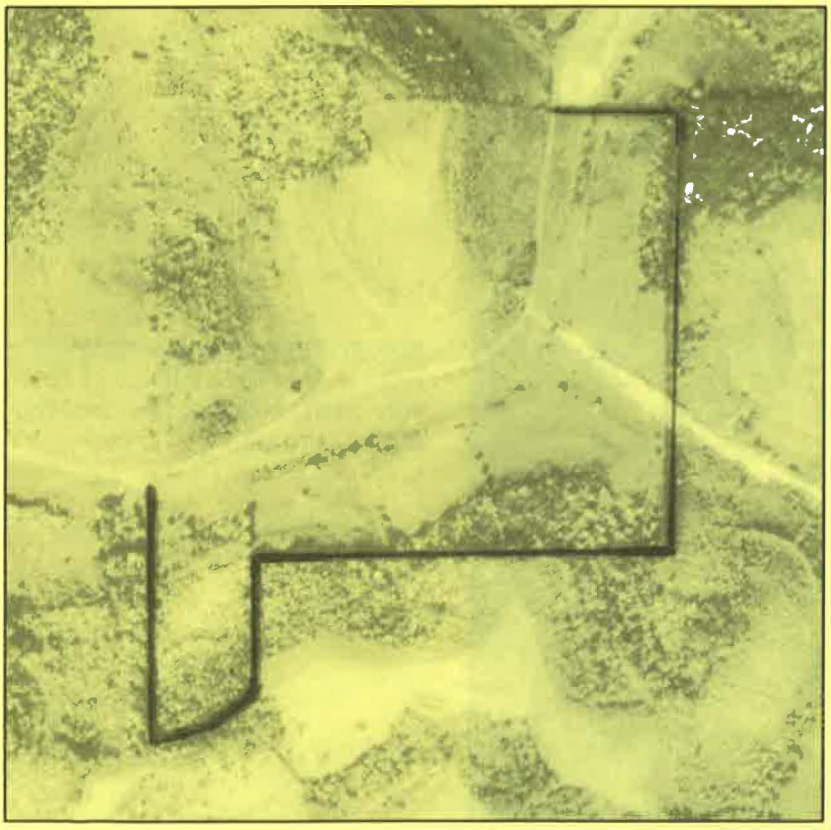
Managing plant communities requires an understanding of the land-use history of the property being managed. Old aerial photographs are a tremendous tool that provide a picture of how the landscape appeared during a previous land-use era. A large percentage of today's non-industrial private forest was agricultural land that has now reverted to forest. Careful examination of the photos with a trained eye can reveal clues regarding the type of agricultural use, and how long it existed. If there was cutting in the woodland, the photos can help bracket when the harvesting occurred. Land managers can use these pictures of the past to help landowners understand the resource they own, how it developed, and what activities can be performed to accomplish current landowner goals.

The following sequential photos from 1939 to 1992 show some of the agricultural and woodland use of the 78-acre Perkey Tree Farm and Stewardship Forest.

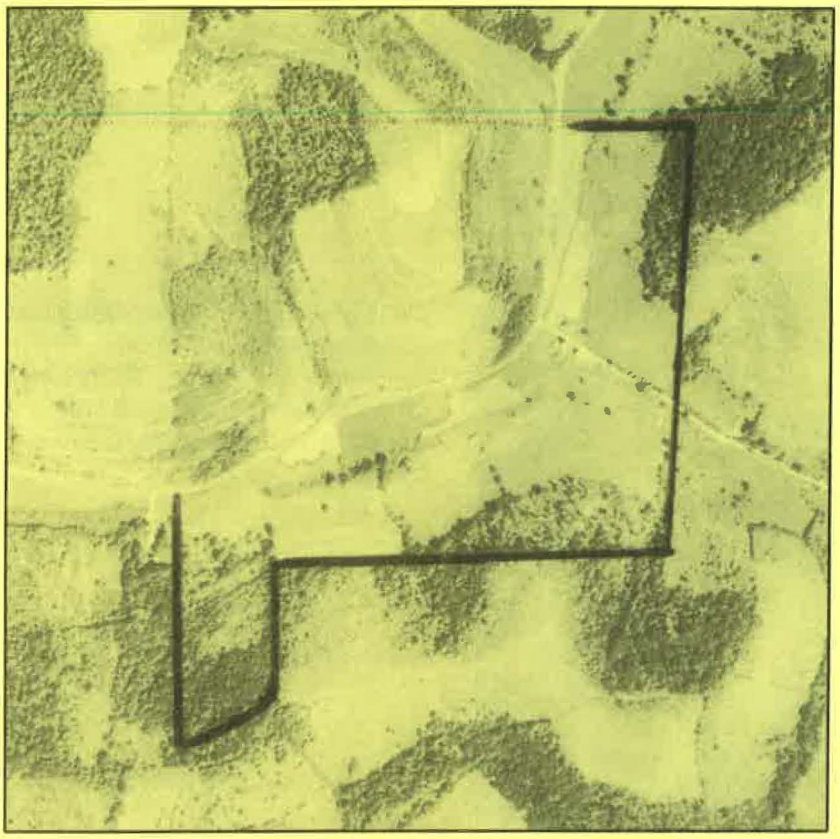
The 1939, 1951, 1958, and 1967 photos were made by copying (on a color copier, pictorial mode) and enlarging 200% (Scale: 1" = 1000'). The 1992 photo was made from a print obtained from a 35 mm slide.

The earliest known aerial photography was taken on May 26, 1939. The land use was dairy farming, with much of the cleared land being hay or pasture.

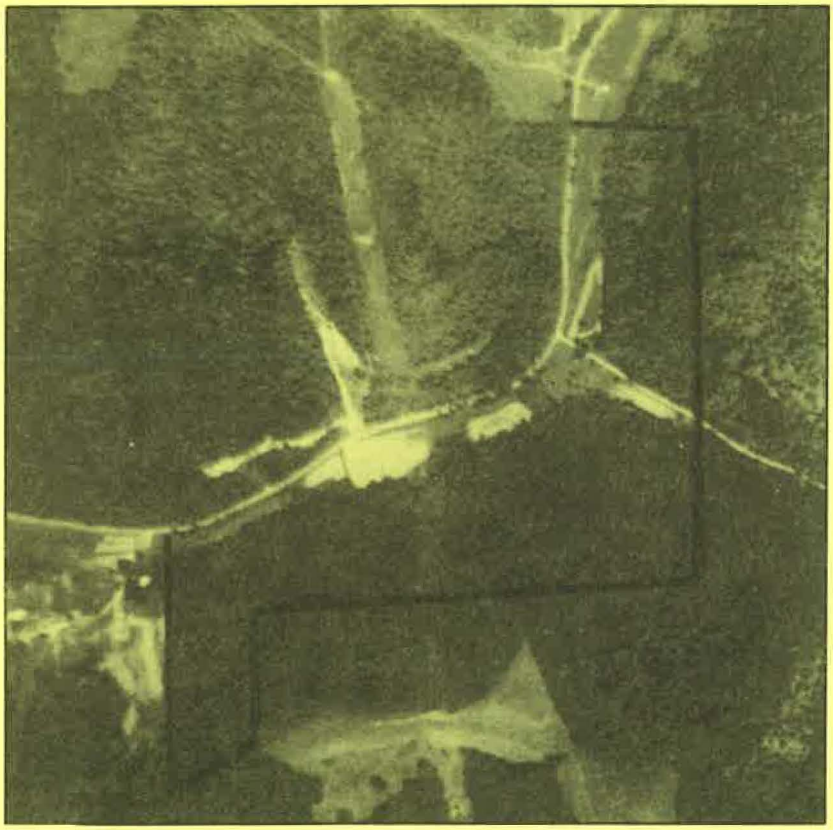
On July 6, 1951, the dairy farm was still in operation, but woody vegetation was starting to encroach on some pastures. Notice that woodlots have relatively closed canopies.



By August 18, 1958, there had been harvesting activity in the woods. Notice the more open canopy, especially in the woodlot in the southeast corner of the property.



By October 4, 1967, all agricultural activities on the hills were stopped. The fields along the creek remained in agricultural use. When fields are abandoned, the location of scattered trees along fence rows and drainages is very important. They are the seed sources for the invasion of the fields.



In September of 1992, woody vegetation occupied much of the area on the hills that was once hay and pasture land.

Historical aerial photos are frequently more usable than modern aerial photography. Old photos are often larger scale and clearer than current photography. Consequently, it may be easier to accurately delineate stand or analysis unit boundaries because the contrast in vegetation is better defined.

The Consolidated Farm Service Agency (CFSA), previously known as the Agricultural Stabilization and Conservation Service (ASCS), will sell aerial photos to individuals who order from their Salt Lake City, Utah, office. When ordering 10x10 black-and-white contact prints, expect delivery in about 6 weeks. The current cost is $3.00/photo, which can be paid with a check or money order. My experience with the quality of the photography has been very positive.

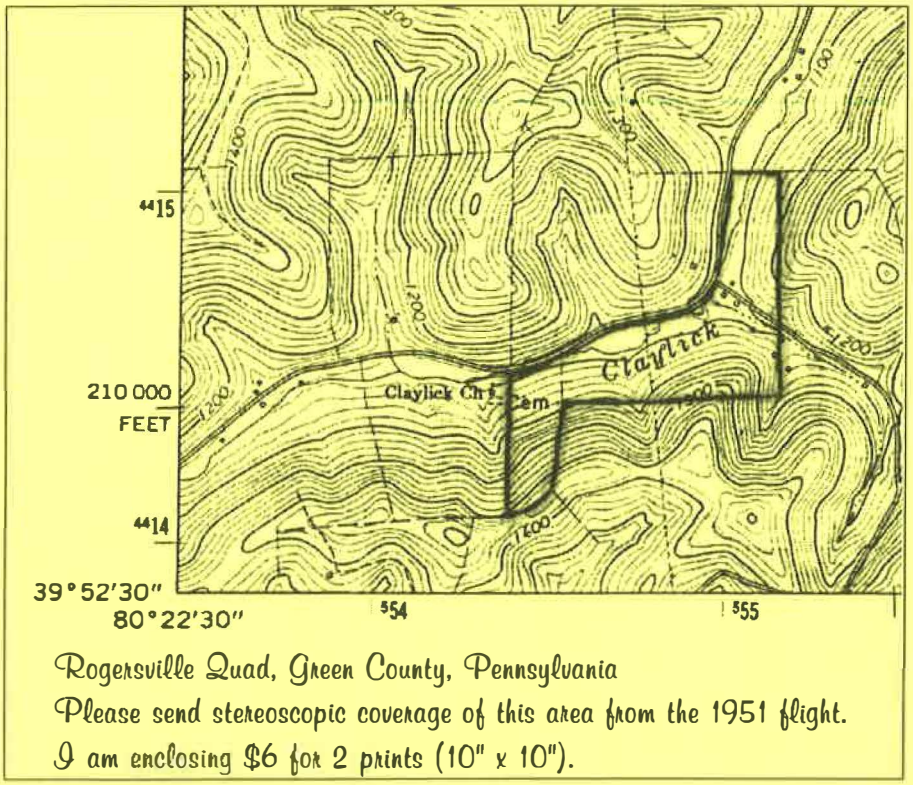
Older photography (generally prior to 1950) is maintained by the National Archives. Currently, reproductions of this photography can be ordered from contractors who have agreed to provide this service to customers. These photos can be expected to cost between $14-$20 each. While the service is more expensive, the turn-around time is much shorter, often about 14 working days from the receipt of the order. I have experienced some difficulty with quality of work, but the contractor was willing to resolve the issue.

Unfortunately, the contractors are unlikely to be able to get as high of quality print as was originally produced. This arrangement with contractors is being tried on a one-year trial basis. To obtain this service you must first contact National Archives using the phone number or address subsequently listed. Either mail or FAX them a map (preferably a copy of a USGS sheet) showing the area you are requesting to have in photo coverage. If they have anything, they will send you a list of contractors with appropriate contact information to enable you to place an order.

For both of these sources, you must clearly communicate to the service provider the area you are requesting photographic coverage for and the year of the flight you are requesting. If you know the date, roll number, and exposure number of the desired photographs, that makes it easy to request copies of those prints. Using form CFSA-441, (formerly form ASCS-441) REQUISITION FOR AERIAL PHOTOGRAPHS, facilitates the ordering process. These forms should be available in any Consolidated Farm Service Agency office.

You may not have specific numbers for photos you want, but you can usually still obtain the desired product with a little more communication effort, using a map. I have found delineating the location of the requested coverage on a United States Geological Survey (USGS) quadrangle map to be an effective means of communicating the information to the service providers I have dealt with. The delineated location must show a portion of either the north or south border of the map, and a portion of the east or west border of the map so the latitude and longitude is visible. It is also advisable to include the name of the map quadrangle, county, and state, so there is less opportunity for confusion.

You may need to include some clarifying instructions. For example, if you are requesting coverage of an area shown on a map, you may want to specify that you want stereo coverage. Service providers should then know to send at least two photos that have overlapping coverage of the requested area. If you are working with a contractor, you may want to specify that you want a matt finish on the photos as opposed to a glossy finish.



This USGS map shows delineated coverage that was requested with associated instructions.

I received a good tip from Len Wrabel, consulting forester in Maryland, regarding an inexpensive and effective means of getting broader benefits from old aerial photos. Take them to a local business that has a color copier, and get copies made for about $2 each. The copies make excellent visuals to provide landowners in stewardship plans. They increase the owners' awareness of the history of the resources they own. Many people might be surprised to learn that the pristine-appearing forest they own was once an agricultural field.

To obtain historical aerial photography, contact the following:

Post-1950 Photography	Pre-1950 Photography
USDA-CFSA **Aerial Photography Field Office** **Customer Services** **2222 West 2300 South** **P.O. Box 30010** **Salt Lake City, Utah 84130-0010** **Phone: 801-975-3503** **FAX: 801-975-3532**	**National Archives** **Cartographic & Architectural Branch** **8601 Adelphi Road** **College Park, MD 20740-6001** **Phone: 301-713-7040** **FAX: 301-713-7488**

When writing to the USDA-CFSA address, you are writing to the office that will be the service provider. When you write to the address for the National Archives, you are writing to see if the coverage you desire is available, and to request a list of the vendors who have agreed to provide aerial photo duplication services for them.

Old aerial photographs provide a picture of the past to help us effectively plan for the management of the vegetation of the future. They are another tool that will help us provide more complete, professional land management services to landowners for a reasonable price. Let's use this tool!

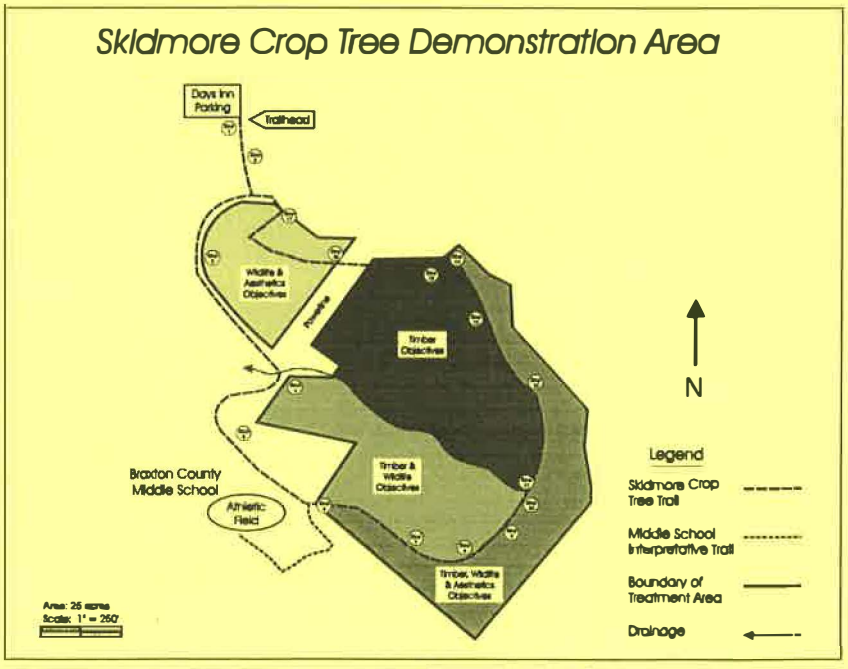
New Demo Area May Reach New Audience

by Arlyn W. Perkey

Many of the Crop Tree Demonstration Areas are designed to reach our traditional audience of foresters and non-industrial private landowners. The Skidmore Crop Tree Demonstration Area in Flatwoods, West Virginia, is uniquely positioned to reach a portion of the travelling public we have not previously gained much contact with. It is adjacent to the Days Inn where a new conference center helps attract about 5,000 guests per month. Visitors can go on an evening walk on a trail winding through a hardwood forest that has been treated to accomplish the landowner's timber, wildlife, and aesthetic goals and objectives.

The Skidmore Crop Tree Demonstration Area is adjacent to the Days Inn at Flatwoods, WV. It is centrally located in the state, so visitors can conveniently meet at the facility.

The motel and conference center owner, John Skidmore, has enrolled the forested portion of the property in the Forest Stewardship Program. His long-term interest in forestry stimulated his willingness to cooperate with the West Virginia Division of Forestry and the Northeastern Area State & Private Forestry to manage the area to show people that forest stewardship is more than just letting the forest grow until it has big trees, and then cutting them. Guests have the opportunity to use a Skidmore Crop Tree Demonstration Area Trail Guide designed to lead them to on-the-ground examples of timber, wildlife, and aesthetic crop trees that were selected and released so they could produce additional benefits. The trail has numbered posts that correspond with numbered messages in the trail guide. In addition, a variety of trees along the trail are identified by species with aluminum tags. The trail guide includes a description of the attributes of each species as a timber, wildlife, and aesthetic crop tree.



Joan Comanor, Jack Ward Thomas, and Bill Maxey visit the recently signed trail that will be used to help show people that with crop tree management, we can make a difference.

The Skidmore Crop Tree Demonstration Area is also adjacent to the Braxton County Middle School. The West Virginia Division of Forestry Urban and Community Forestry Group, the Elk Soil Conservation District, the Natural Resources Conservation Service, and the AmeriCorps Rural Development Team cooperated in the construction of an outdoor education trail on school property. This trail has been joined to the Skidmore Crop Tree Trail, providing easy access for teachers and students to the educational opportunities in the demonstration area. While this audience is different from motel guests, it was relatively easy to develop messages appropriate for both groups. For example, the description of crop tree attributes for each species was intentionally localized to make them relevant to students who may remain residents of the area as adults. This does not significantly detract from the applicability of the message for travelers.

On June 19, 1995, the National Association of State Foresters held an Executive Committee Meeting at the Days Inn. State Foresters from Iowa, Idaho, Louisiana, Illinois, Wisconsin, and Virginia joined Bill Maxey, State Forester from West Virginia; Jack Ward Thomas, Chief of the USDA Forest Service; and Joan Comanor, Deputy Chief for State & Private Forestry on a tour of the demonstration area. They were able to examine a draft trail guide and see the messages and method of delivery to the intended audiences. Hopefully, the visit of these prestigious guests will be the beginning of a long period of use for this new demonstration area. Copies of the trail guide will be available at the motel registration desk. To receive a copy of the trail guide (including location map) through the mail, contact:

Arlyn W. Perkey
USDA Forest Service
180 Canfield Street
Morgantown, WV 26505

Phone: 304-285-1592

Salvage Sale Markets and Timing

by

Jack Frank
Timber Resource Specialist
Allegheny National Forest, Warren, PA

Randall A. Durner
Timber Sale Contracting Officer
Allegheny National Forest, Warren, PA

In most cases, salvage material must be prepared, sold, and harvested quickly. However, one hundred percent salvage sales usually have little market appeal, depending on species, quality, and other factors. Sales with greater than 50 percent dead material have only marginal marketability. The following information gathered recently on the Allegheny National Forest may provide some helpful insight into the utilization, valuation, and marketing of dead and dying black cherry, red maple, sugar maple, white ash, and American beech.

With existing market conditions in northwest Pennsylvania, a salvage sale needs a minimum volume of 2 to 4 MBF/acre (live and dead trees). Total sale volume should be at least 50 to 100 MBF (although smaller volumes of high value timber may sell well, e.g. black cherry). If the sale has a preponderance of dead white wood volume (e.g. beech, ash, maples), sale size should be kept below 500 MBF to facilitate short-term harvesting. If a sale has a major portion of its volume in black cherry or live trees, it is more desirable and can have other less economical factors related to its design.

White wood species must be harvested within 8 to 10 months of their death to be appraised and sold as sawtimber. Dead white woods lose most of their value as sawtimber in the first three to four months because of boring insects and staining. They should be harvested before the start of the second summer season after death if they are to be appraised as even the lowest value sawtimber (construction grade or local-use sawtimber).

When wood is down, foresters often wonder how long they have to remove products before the process of deterioration decreases the value of timber that can be salvaged.

Black cherry must be harvested within three years of its death to be appraised and sold as either sawtimber or pulpwood. Larger diameter trees retain their merchantability longer than smaller diameters. By the end of three years, most of the sapwood will have deteriorated beyond use.

Dying and recently dead hardwood sawtimber trees can be appraised as Factory Lumber Log Grade material, providing they meet specifications for grade at the time of cruising. Those trees meeting minimum tree and piece specifications, but which do not contain a minimum Factory Lumber Log Grade 3 or better log, should be advertised as construction grade or local-use sawtimber and cruised as such. There is a significant price differential between logs

meeting Factory Lumber Log grades, and construction/local use logs, so urgent harvesting is imperative to minimize lost value.

White wood species must be harvested within two years of their death to be sold as pulpwood (two summer seasons). After 18 months, these trees have little value for use in particleboard. They will still have some value as paper pulp, but weight reduction from moisture loss becomes a concern to the logger (pulpwood is usually bought by weight at the mill). Pulpwood used for paper fiber can be more deteriorated than that used for particleboard.

Although these recommendations are offered as a result of field investigations on the Allegheny National Forest, information was also solicited from wood products industry personnel and other federal and state officials regarding the technical aspects of preparing and marketing salvage sales. It is hoped that this information provides some useful guidelines for salvaging hardwoods.

* * * * *

Caution: When Girdling, if One Inch is Good, Two Inches Aren't Better

by Arlyn W. Perkey

When releasing crop trees, it is sometimes desirable to girdle competing trees instead of cutting them. If retaining standing dead trees is consistent with the landowner objectives for a stand, then girdling may be an appropriate alternative to felling.

This tree was girdled with a chain saw, but the cut was so deep that the tree was unstable and did not remain standing. It not only failed to accomplish the landowner's objectives, but it created a hazard for the worker and visitors to the treatment area.

Recent work experiences have made me aware of the need to caution people who are girdling trees that cutting too deep with a chain saw can defeat the purpose of girdling. Cutting to a depth of one inch is sufficient to sever the cambium. Cutting deeper leaves the tree very vulnerable to falling over during periods of high winds.

Workers may think that deep cuts will shut-off the transmission of water in the tree and result in a quick kill. Unfortunately, especially with diffuse-porous species, a cut that is deep enough to interrupt the flow of water is also deep enough to leave the tree in an unstable condition.

Where Will the Wood Come From? — Some Follow-Up Comments

The article in Issue 15, *Where Will The Wood Come From?,* generated some good, thought-provoking comments from readers. I will highlight some of them and add a little of my own.

The article did not adequately address the critical role that taxes play as an incentive or disincentive to management on non-industrial private forestland.

Almost everyone agrees that taxes can have a major influence on the actions of landowners. At the First National Conference on Forest Stewardship at Nebraska City, Nebraska, in April of 1994, the first recommendation for increasing the number of forest stewards was: taxation - provide incentives and relief. Landowners wanted capital gains, estate, and property tax credit for stewardship participants. I agree; this should be an item of public support for landowners in the Stewardship Program because they are presumably producing a public benefit by having and implementing a stewardship plan on their property. To the extent that enrollment in the Stewardship Program increased, there would be an increase in public support in the form of tax incentives.

Some state programs that give property tax credits to forest landowners require the landowner to have a management plan and actively implement it. The same rationale has not been applied to the capital gains tax or to estate taxes. Perhaps it should be, if we truly want taxes to be used as incentives to encourage sustainable forestry. In the past, our argument has been for fair and equitable treatment in the tax code. While that is a laudable argument, it has not been sufficient to gain the support needed to obtain recognition of the truly tong-term nature of forest management. Adding the requirement of active management as a condition of favorable tax treatment may make the concept more worthy to some legislators.

Some may feel that favorable tax treatment conditional on active management is yet another opportunity for government to interfere with private property decisions. Who is going to decide what constitutes active management and when it has been accomplished? Would it be a public employee? Is there another way to do it that is more efficient, but would protect the public interest?

Wood-using industries should voluntarily pay a price differential for wood harvested on managed woodlots.

One reader from Maine suggested that industry should be willing to pay a price differential for products that are harvested from managed woodlots. He cited an example where it had been tried. In that case, the attempt had not resulted in a long-term successful venture, but I agree that the idea has merit. If the mechanism for implementing the program truly rewarded sound forest management, then the industry could certainly substantiate their efforts to support sustainable forestry in their resource supply area.

This previous attempt was made in 1987. With all the recent interest and discussion by industry about sustainable forestry, the idea may be worth trying again. We are now in a different environment.

If it became desirable for enterprise zones to become formally organized into entities that resemble landowner cooperatives, there is at least one existing organization that has an established track record for service to landowners.

The Western U.P. Forest Improvement District in the Upper Peninsula of Michigan elected its first Board of Directors in July of 1987. As of December 31, 1993, there were 514 members with a combined ownership of 123,654 acres. This organization has made steady progress toward achieving self-sufficiency.

Enterprise Zones could also serve as entities to encourage the implementation of ecosystem management on non-industrial private land.

Yes, that is conceivable, but because of the great concern about private property rights related to ecosystem management, I purposely left the "E" word out of the article. I think the concept of enterprise zones to encourage intensive forest management in a specific area has sufficient merit to warrant adoption without incurring the added complication of trying to implement ecosystem management. At this time, we still have a major challenge just trying to get landowners to manage what they own to accomplish their goals, let alone trying to get them to manage to accomplish goals they have in common with other landowners in the vicinity.

However, I do feel that the concept of enterprise zones is very compatible with sustainable forestry. An industry that actively supported an enterprise zone within its resource supply area could certainly show it was aggressively working to grow a continuous supply of timber products.

In recent months, I have seen terms like sustainable forestry, sustainable development, and sustainable forest management frequently used in print. The concept is being promoted by the forest industry, government, and international interests. Some of the preceding thoughts, along with the original article, may be useful building blocks to develop tools that can be used to make the concept of sustainability a reality in our non-industrial private forests. As practicing forest management professionals we all need to participate in the development of those tools.

New Decision Model Software Available

Scientists at the Northeastern Forest Experiment Station of the USDA Forest Service have completed the first two modules of the Northeast Decision Model (NED). NED is a computerized system designed to provide forest managers, policymakers, and the public with site-specific silvicultural recommendations that integrate the multiple values of forests in the Northeast. The premise of the model is that management goals can be realized by assigning priorities to management objectives, identifying trade-offs among them, and selecting activities that are compatible with the goals and are likely to produce the desired conditions.

One of the available modules, the Stand Inventory Processor and Simulator (NED/SIPS), provides an effective means of creating, editing, managing, and analyzing forest inventory records, and simulates future conditions at the stand level. NED/SIPS runs on most MS-DOS based microcomputers and requires no additional hardware or software. A host of tools is available to help analyze the data. A variety of reports can be generated, including summary tables for number, density, basal area, volume, and value, as well as economic analyses of income and expenses over the planning period.

The user can "cut" a stand by applying standard treatments or a customized cutting scheme. Reports that are available for the original stand are also available for the cut and residual stands. Four growth simulators can be used to show what the stand may look like in the future, whether or not a treatment is applied. Various treatments can be compared in minutes by "uncutting" or "ungrowing" the stand and applying other treatments and other growth simulators.

The second module available, the Forest Stewardship Planning Guide (FSPG), runs in the Microsoft Windows environment and guides users step-by-step through the process of determining what they want from their forests. Five planning options are available: ecological aspects, visual and scenic qualities, water quality, wildlife, and wood production. After asking a series of questions about the five options, the program makes limited recommendations on how to manage a forest for specific goals and describes the conditions needed to accomplish them.

To get either of the available program modules, free of charge, send your name, company name, mailing address, and daytime phone number to Neil Lamson, USDA Forest Service, P.O. Box 640, Durham, NH 03824, or call Neil at 603-868-7689.

Seventh American Forest Congress
Many Voices - A Common Vision

A Citizen's Congress

The Seventh American Congress will convene in Washington, D. C., February 21-24, 1996.

The Objective - To develop a shared vision, a set of principles, and recommendations that will ultimately result in policies for our nation's forests that reflect the American people's vision and are ecologically sound, economically viable, and socially responsible.

Who's Involved? - Individuals from conservation organizations, business, universities, and federal, state, and tribal government. Representatives of these entities met in January 1995, at the Arbor Day Foundation in Nebraska in a Roundtable discussion where they issued a call to convene the Seventh American Forest Congress.

Roundtable Consensus - Two basic agreements emerged from the Nebraska session. First, the status quo is not working, and second, the time is right to guide a grassroots, inclusive consensus focusing on common strengths and values.

Historical Context - Forest Congresses, bringing together representatives from public and private interests, have been held at critical points in the nation's history.

- The first, convened in 1882, laid the foundation for the conservation movement in the United States.
- The second, hosted by President Theodore Roosevelt in 1905, was followed by the establishment of the National Forest System.
- Subsequent Congresses, convened in 1946, 1953, 1963, and 1975, addressed the critical policy issues of the time.

Why Now? - The 1996 Congress may well prove to be the most important meeting since 1905. "After a decade of gridlock, it's time to engage the American people in a dialogue about our nation's forests," said John C. Gordon, Pinchot professor for forestry at Yale University and member of the Nebraska Roundtable. "We have a plethora of often conflicting laws, court decisions, and directives. What the Seventh American Forest Congress seeks is a cohesive policy that is environmentally sound and economically viable."

Pilot roundtable discussions have been held in Minnesota, Connecticut, and Vermont. John Hibbard, Connecticut Forest and Parks Association, said, "The two evening meetings they held were successful and productive." They had about 55 participants with a wide range of backgrounds. With the help of meeting facilitators, they drafted a vision statement.

In addition to local roundtables, collaborative meetings are planned to discuss topics such as ecosystem management, green certification, trade and international development, and other issues. Some meetings are being organized by professional and membership groups.

For more information or to VOLUNTEER to help or participate in any of the pre-Congress activities, please call:

Office of the Seventh American Forest Congress
203-432-5117

The Symposium on Nonindustrial Private Forests: *Learning from the Past, Prospects for the Future* will be held February 19-20, 1996, immediately before the 7th American Forest Congress and at the same location. For more information contact the Symposium Chairperson, Mel Baughman, Department of Forest Resources, University of Minnesota, 115 Green Hall, 1530 N. Cleveland Avenue, St. Paul, MN 55108 or call 612-624-0734 (FAX 612-625-5212).

Announcements

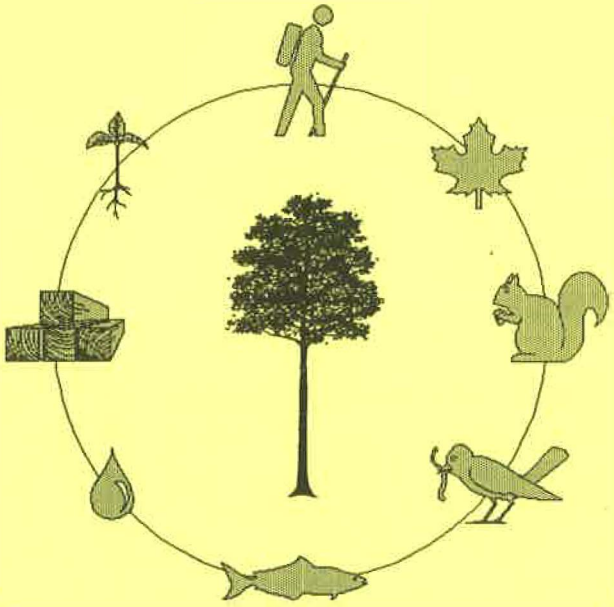
Our office has received a limited supply of two new publications. The first one is titled "Forested Wetlands -- Functions, Benefits and the Use of Best Management Practices." It is a joint venture with NA-S&PF, NRCS, U.S. Army Corps of Engineers, EPA, and USDI-Fish and Wildlife Service. *Forested Wetlands* is a very informative color publication.

The other publication is titled "Pennsylvania Forests -- The Forest Where We Live and Work." This was published by the Pennsylvania Forestry Association. To request a copy of either publication, call 304-285-1592 or write to:

Roxane Palone/Helen Wassick
USDA Forest Service
180 Canfield Street
Morgantown, WV 26505

NORTHEASTERN AREA
State and Private Forestry

FOREST RESOURCES MANAGEMENT



Managing the forest for:

- ***recreation***
- ***aesthetics***
- ***wildlife & fisheries***
- ***water quality***
- ***forest products***
- ***soil productivity***

Primary contacts for forest management assistance in the Northeastern Area are:

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Radnor, PA 19087

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Morgantown Field Office

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Durham Field Office

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St. Paul Field Office

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